E&MJ METAL AND MINERAL MARKETS

WEEKLY MARKET INFORMATION ISSUED BY THE PUBLISHERS OF ENGINEERING AND MINING JOURNAL

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THIS WEEK IN THE MARKETS...

- **Copper quotations ease on exchanges. U.S. producers at 33c; smelter at 35c.**
- **Lead sales data to change. Aluminum shipments off in November. Zinc sales drop.**

COPPER—domestic average 34.388c a lb delivered

Total tonnage of copper priced this week in the U.S. dropped considerably from last week. In part the drop reflected a decrease in available imported copper—it probably reflected shipment irregularity. Pricings outside the U.S. also dropped, in part owing to the holidays. U.S. producers continue at 33c delivered and one smelter continues to price at 35c. Merchants are asking about 38 to 38¼c delivered. Katanga raised Tuesday to about 31¾c c.i.f. The New York Commodity Exchange dropped more yesterday—it closed ½c under Tuesday and 1¼c under Monday. The LME was off about ½c from Monday morning.

Trouble at Mufulira, mainly in connection with overtime work, was settled. Phelps Dodge and the unions have made little if any progress. Kennecott is operating at all properties except the mines and mill in Utah. The Utah smelter and refinery are operating and shipments should continue to increase. Picket lines continue at the Utah mine and mill. Anaconda has not settled at the Great Falls and Butte properties but it has at Anaconda.

ALUMINUM—primary pig 26c a lb delivered; export 23¼c

Shipments of aluminum sheet, plate and foil reported by the Aluminum Association dropped in November to 62,280 tons from 69,832 in October. The high for the year was 98,969 tons in July. August was 58,306 and September 63,078 tons.

Previous to November there was little if any effect from the steel strike but November shipments (and probably December) were effected. Primary aluminum production also dropped in November: it was 153,666 tons; October was 173,762 short tons.

Secondary aluminum die-casting alloy prices rose this week by various amounts. No. 13 is up about ¾c to 26c, no. 43 is up about 1c, no. 380 with 1% zn is up about 1c and with 3% zn about 1½c. Soe had risen slightly the previous week (see p 9).

Many aluminum companies, and the U.S. Department of Commerce's BDSA, have predicted a 10% to 15% increase in aluminum consumption in the U.S. in 1960. The predicted increases this year, like in many years, are largely or partly based on the notion aluminum will find new uses. The major year to year changes, both up and down, have reflected the general level of business conditions. An improvement in business conditions is widely predicted for 1960. Most estimates of 1960 building construction suggest this industry, a large user of aluminum, will be lower in 1960—partly because of high mortgage rates.

It is not certain all or any of an increased aluminum consumption in the U.S. will be of U.S. made metal. Output in Europe is increasing. The spread between U.S. prices and foreign prices has increased, including for mill products. Experience has been gained by sellers of foreign aluminum and products in the mid-West—material which comes in more cheaply through the St. Lawrence Seaway. Aluminum product imports more than doubled in 1959—they could double in 1960 over 1959.

LEAD—12c a lb New York

Lead sales this week were 5,468 short tons. Beginning with the first week of 1960 M&MM will report a different lead sales figure. In the past the M&MM lead sales have excluded lead sold on long term contract, lead sold for delivery more than three months ahead, and imported lead except where the seller was unable at the time of sale to determine if the sale would be filled from domestic or foreign metal. The M&MM weekly lead sales figure will now include these formerly excluded categories. The major sellers of imported lead will now also report sales to M&MM. There will be no change in the form, methods or coverage in calculating the M&MM weighted average lead price.

Some sellers report that since the price dropped to 12c a lb buyers have shown more interest. The amount of flat price business has increased.

European lead prices had firmed last week but yesterday they dropped slightly; the N. Y. Commodity Exchange was also off. London is now about 9¼c. The drop in the U.S. price to 12c, plus the import quota, has reduced the importance of foreign lead on the U.S. market. Some European lead was sold at 11½c ex docks last week, but most European sources are not prepared to ship here at the present price ratios (there is still some in warehouses though). U.S. buyers now have little incentive to buy it—even at 11½c ex docks the price delivered near New York is less than ½c under the domestic price of 12c. Australian, and Yugoslavian will still come in and perhaps Spanish. Material from the Americas and some from Africa will continue to come to the U.S.

ZINC—Prime Western 12½c a lb East St. Louis

Zinc sales were down sharply from last week. Sales in December were nearly three times as great as in November.

An Anaconda official said the company plans to transfer its zinc treatment work from Great Falls to Anaconda, if progress is not made soon on the Great Falls strike.

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NAWMD Speakers Discuss Nonferrous Metal Prospects

The outlook for zinc appears to be a very good one, Samuel H. Sachs, American Zinc Co. of Illinois, told a recent meeting of the Midwestern Division of the National Association of Waste Material Dealers.

Sachs said that his prediction was based on contemplated growth in the production of continuous galvanized sheets, which will increase the use of Prime Western zinc, and because 1960 automobiles contain more zinc per unit than ever before.

"The steel companies themselves, expect the galvanized sheet business to increase, as evidenced by the fact that five new lines for the production of continuous galvanized sheets are being planned by the mills," Sachs said. "When these are installed, the continuous sheet capacity in the nation will be increased by 15%."

Discussing the situation in aluminum, Louis Sirotkin, Bohn Alumnium & Brass Corp. told the meeting that the aluminum industry was suffering from low profit margins due to keen competition. This, he said, was true of dealers, smelters, primary producers, or independent fabricators.

Sirotkin analyzed the statistical position of the aluminum industry, and pointed out that in 1959 400,000 tons of aluminum scrap will have been generated, of which 80% will have gone to smelters, 12% to primary producers mostly on toll conversion and 8% to independent fabricators and extruders. Of the 400,000 tons, he added, 75% was new plant scrap and 25% old obsolete scrap.

Discussing the copper situation, S. Wakesberg, secretary of the NAWMD Metal Divisions, said that although "we have witnessed the longest and severest strike in copper on record, the statistical picture in copper is not too alarming."

He pointed out that fabricators' statistics for October showed refined stocks at 431,612 tons and said the decline was certainly not as severe as had been anticipated. Producers' stocks, he added, on a world-wide level, were higher than at the start of this year, prior to this very severe strike. "But perhaps the vulnerability of the whole copper market may be seen in the sharp declines on LME and Comex that occur every time a rumor or report comes out that a copper company is close to settling with the union. It would seem that if the impact of the strike was as sharp as might be expected the market wouldn't be swayed so easily by day to day reports of strike agreements."

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Higher Prices Boost Austrian Zinc Prospects

Vienna (McGraw-Hill World News): The Bleiburger Berkwerks Union, an Austrian state enterprise operating in Carinthia province, announced an increase in 1959 zinc production from the originally-scheduled 10,000 metric tons to a new target of 11,400 metric tons. The reason for the production increase is improvement in international zinc prices, the company said.

World zinc prices, having improved from £61 lb sterling to about £89 lb offer a better chance for foreign marketing returns. These returns are of greatest importance to the BBU's zinc mill at Gailitz (Carinthia province) which had concluded a 100-million Austrian schillings (about $3,846,100) investment program when the price slump began.

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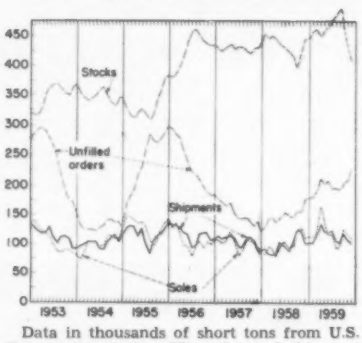
U.S. Copper Fabricator Data



Data in thousands of short tons from U.S. Copper Association. The sales and shipment series are related only to purchases of refined copper by the fabricators, including copper refined by custom smelters from their intake of scrap and concentrates. All statistics refer to brass mills, wire mills and foundries. All series are for fabricated products except stocks which are of refined copper and copper in process. November is the last month indicated. Sales and shipments series are two months moving averages.

Kennecott Copper Corporation
Kennecott Sales Corporation

Producers and Sellers of

Electrolytic Copper
Chino Fire Refined Copper (K.C.M.)
Braden Fire Refined Copper (★★★)
Molybdenite

Offices

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E&MJ METAL AND MINERAL MARKETS

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1959 Aluminum Output Seen 25% Higher; Monthly Record Set; Association Estimates U.S. Capacity of 2.6-Million Tons by '61

The following excerpts have been taken from the Aluminum Association's end-of-year review, reported by Donald M. White, executive secretary:

Aluminum output of the combined facilities of the six American producers for 1959 is expected to be at least 25% over production in 1958, or above 1,950,000 short tons. The current year has thus far seen five new monthly production records set as the nation's potlines were operated at near capacity levels.

Installed capacity for the 21 reduction plants in the country stood at 2,336,083 tons in September and additional facilities were under construction which would boost the nation's total capacity to 2,604,750 tons by the end of 1961.

Shipments of all classes of semifabricated aluminum products were substantially higher in 1959 than in the previous year. U. S. Bureau of Census statistics showed a 37% increase in total shipments of all wrought products during the first nine months of 1959. The Bureau's figures show shipments of sheet and plate up 38%, extruded shapes up 37%, rolled and continuous cast rod and bar up 91% and forgings up 4%. Increases were also registered in shipments of aluminum wire and cable: the nine months' totals showing ACSR (aluminum conductor, steel reinforced) and bare cable up 16%, bare wire up 55% and insulated wire and cable up 24% over the corresponding months of 1958. Shipments of drawn tube were 27% higher while welded tube advanced 72%. In aluminum foil an increase of 32% was reported, and powder and paste reflected an increase of 37%.

The construction industry, as it has for several years, took about a quarter of all wrought products shipped, according to reports submitted by The Aluminum Association's 53 members. Though the field of building and construction products has long been dominated by other materials, aluminum is invading this market extensively.

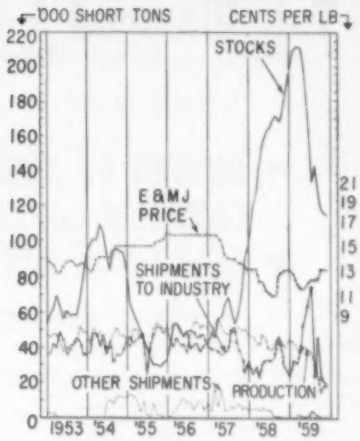
An example of this concern for technical enquiry is apparent in the publication of a 392-page reference volume on structural design data by The Aluminum Association last August. The Aluminum Construction Manual is the result of two years of close cooperative effort among Association members and points the way to expanded use of aluminum in buildings, bridges, ships and other structures in which metals are subjected to stress. It is also expected that the ready availability of authoritative design data will facilitate approval for the use of aluminum for structures in areas where outmoded and restrictive building codes still encumber architectural progress. An indication of recent advances may be noted in Los Angeles where the use of aluminum for commercial and residential construction was authorized by the Los Angeles Building Department.

In the aluminum foundries represented in The Aluminum Association it was reported that over half the permanent mold castings produced were shipped to the auto-makers. Automotive uses of the light metal continued their upswing with an estimated per car average for 1960 models of 56.2 lb being used to replace heavier materials. This represents a 13% increase over an actual net of 49.6 lb for the 1959 models. One 1960 compact car led the field with 102.6 lb of aluminum, most of which was used in a six-cylinder 80-horsepower engine.

In rail transport, 1959 brought the first

(Continued on page 11)

Primary Refined Lead Data



The above data, in thousands of short tons, are from the American Bureau of Metal Statistics. They refer to the total amounts of refined lead as reported by all primary refiners in the U.S. Some secondary lead is included. It is assumed "other shipments" refers to lead sent to the U.S. Government. "Shipments to industry" includes exports. Data are through November.

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Lead Data Little Changed

American Bureau of Metal Statistics lead data for October and November in short tons:

	Oct.	Nov.
Stock, beginning	117,296	115,418
Production	18,892	18,796
Total Supply	136,188	134,214
Shipments:		
U.S. consumer	20,552	19,869
Exports	...	...
(a) Other	...	...
Total	20,552	19,869
Stock at end	115,418	114,303

(a) Presumably U.S. Government

Industrial classification of shipments, monthly average 1958, and October and November:

	1958	Oct. 1959	Nov. 1959
Cable	3,237	700	2,630
Ammunition	1,738	500	200
Foil	90	35	70
Batteries	4,765	4,299	3,714
Brass mills	487	228	205
Sundries	4,257	2,676	2,566
Jobbers	991	1,021	797
Unclassified (a)	16,133	11,093	9,687
Total	31,698	20,552	19,869

(a) Much of the "unclassified" lead goes into tetraethyl for gasoline; also into oxides, sheet-pipe and U.S. Government.

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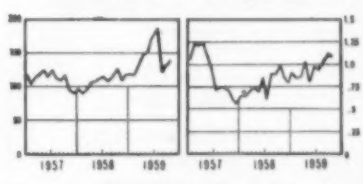
Aluminum Magnesium



The charts show net shipments of aluminum and magnesium mill products in thousands of short tons per month. They are taken from U.S. Department of Commerce FACTS FOR INDUSTRY. Latest data for October.

T. L. Diamond & Company, Inc.

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GSA Continues Zircon Sale

General Services Administration has announced that no acceptable bids were received for purchase of 1,300 tons of baddeleyite and 7,000 tons of zircon offered for sale on November 27.

Offers to purchase all or portions of the tonnage of either item will now be considered on a negotiated basis. The November sale was predicated on a minimum lot of 120 short tons.

According to GSA's current disposal plan, offers should be directed to George K. Casto, Defense Materials Service, GSA, Washington 25, D.C., by the close of business, Wednesday, Mar. 2, 1960.

Baddeleyite and zircon, both zirconium ores, are used in foundry sands facings and in the production of zirconium metals, ferroalloys and refractories. Acquired for the national stockpile and now excess to defense needs, the quantity to be sold by GSA is stored at Jeffersonville, Indiana; Kendaia, New York; Atlas, Ohio and Fort Estill, Kentucky.

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Rare Earth Oxide Prices

Because of the growing interest in rare earths, M&MM this week is publishing a Lindsay Chemical Division price list for rare earth oxides. Prices, effective Jan. 1, 1959, are on a delivered continental U.S. basis, net 30 days. Prices for larger quantities are available.

Rare earth salts: acetates and sulfates 75%; oxalates, chlorides and nitrates 60% of oxide prices; carbonates and fluorides are the same as oxide prices. Yttrium salts: acetates and sulfates 60%; chlorides and nitrates 50%; carbonates and fluorides 80% of oxide prices.

(See Dec. 17 M&MM for rare earth metal prices.)

		Per gm 1-99	Per gm 100-gm	Per lb
Lanthanum oxide	99.99%	Small lots only		
	99.997%			
Ceric oxide	99.9+%			
Neodymium	99%	$0.15	$0.13	$35
oxide	99.9%	0.20	0.15	40
Praseodymium	99%	0.20	0.15	40
oxide	99.9%	0.25	0.20	50
Samarium	99%	0.25	0.20	50
oxide	99.9%	0.30	0.25	60
Europium	99%	4.50	3.00	850
oxide	99.8%	5.00	4.00	900
Gadolinium	99%	0.55	0.40	105
oxide	99.9%	0.65	0.43	125
Terbium	99%	4.50	3.00	850
oxide	99.9%	5.00	4.00	900
Dysprosium	99%	0.55	0.40	105
oxide	99.9%	0.65	0.43	125
Erbium	99%	0.55	0.40	105
oxide	99.9%	0.65	0.43	125
Yttrium	99%	0.30	0.20	60
oxide	99.9%	0.35	0.25	70
	99.99%	0.40	0.30	80
Holmium	99%	0.55	0.40	105
oxide	99.9%	0.55	0.43	125
Ytterbium	99%	0.70	0.53	160
oxide	99.9%	0.90	0.70	200
Thulium	99%	4.50	3.00	850
oxide	99.9%	5.00	4.00	900
Lutetium	99%	5.30	4.00	1200
oxide	99.9%	6.70	5.00	1500

International Minerals and Metals Corporation

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CADMIUM
ZINC AND BY-PRODUCTS
MERCURY

Miscellaneous Metals

Wholesale lots, (a) f.o.b. ship. pt.; (b) delivered; (c) f.o.b. N.Y.; (d) Dep. on size of lot; (e) dep. on grade; (n) nom.

ALUMINUM: lb (b) eff. 12-17-59, ingot:
99.50%.....28.1c 99.80%.....29.1c
99.75%.....28.6c 99.85%.....30.1c

ANTIMONY: dom, lb., Dec. 24-30 Hol. 25
boxed N.Y. (c) 32.590c
bulk (a) 29c
boxed (a) 29½c
imported 10-ton lots, 99½%, duty pd..24½c
99% 24c

BERYLLIUM: 97%, (a), lb $71.50

BISMUTH: lb, ton lots $2.25

CADMIUM: lb (b) Dec. 24-30 Hol. 25
Ton lots, Eff. Oct. 1, 1959 .....$1.30
Less than ton lots $1.40
See Oct. 8, 1959, p. 12

CALCIUM: lb, ton lots, slabs, etc. $2.05

CHROMIUM: (b) lb of material,
exo. 98.5%, .05%C, ...(d)$1.15-1.19
Elec. 99.8% .....(d)$1.15-1.19
Vacuum melting .....4c more

COBALT: lb, (c), eff. 2-1-59
500 lb lots $1.75
100 lb $1.77
less than 100 lb $1.82
fines $1.75

COLUMBIUM: lb, 99½%, (d)
roundels $36
rough ingots $50

GALLIUM: gr, 1000-gr lots $3.00

GERMANIUM: gr
1000-gr lots, 1st red .....34½-35c(a)
intrinsic .....35c(b)&37c(a)
10,000-gr lots, 1st red .....33c(a)
intrinsic .....35c(a)(b)

INDIUM: tr oz, 99.9%, small lots $2.25
over 5,000 oz $1.25-2.25

IRIDIUM: tr oz $75-80

LITHIUM: lb 99.5% $9-11

MAGNESIUM: lb (a) 10,000 lb lots,
pig ingot 99.8% 35¼c-36.65c
notched ingot 36c-37.45c

MANGANESE: lb (b) 95½%, carloads,
bulk 45c
packed 45¾c
elec (a) frt. allowed E. of Miss., 99.9%..34c
ton lots eff. 4-1-57 .....36c
prem for hydrogen removed .....¾c lb

MOLYBDENUM: (a) eff. 8-56
powder, carbon red $3.35

NICKEL: lb (a) duty included 74c
eff. 12-6-56
dealers 74c
powder (b) U.S. 74c
sinter (nickel content) point of entry,
eff. 7-14-58 .....69.6c

OSMIUM: oz (n) $70-90

PALLADIUM: tr oz eff. 11-9-59....$22-24

PLATINUM: tr oz $77-80
average $77

QUICKSILVER: flask, N. Y. $212-14

RADIUM: mg, Ra content $16-21½

RHODIUM: tr oz $122-125

RUTHENIUM: tr oz $55-60

SELENIUM: lb, 2-19-58, comm grade $7
high purity $9.50

SILICON: lb (a) eff. 6-1-59
98% max. .51-1.0% Fe, crushed 20.85c
lump 19c
Hyper-pure: (4-1-57) #1.....$360
#2.....$250
#3.....$160
solar cell (4-1-57) .....$ 90

SODIUM: lb, carloads 16½c

TANTALUM: per lb, (a) (e), powder $40-58.60
sheet (e) $50.35-59.18
rod (e) $73.04-80.23

TELLURIUM: lb $2.50

THALLIUM: lb $7.50

TITANIUM: lb (a) A-1 99.3%
max. .3% Fe $1.60
max. .5%, Fe. eff. 8-1-59 .....$1.50

TUNGSTEN: lb 98.8%
1000-lb lots .....$2.75-$2.90
Hydrogen red 99.99% $3.35-4.25
dep. on Fisher No. eff. 12-28-59

VANADIUM: lb, 90% V 100 lb lots..$3.45

ZIRCONIUM: lb (a) sponge, powder
platelets: low hafnium $7-14
comm.....$5-10

Metallic Ores

Tons of 2000 lb or units of 20 lb, unless otherwise stated. Short ton unit=stu; long ton unit=ltu. (a) c.i.f. U. S. ports, (b) f.o.b. ship pt., (c) f.o.b. mine or mill (g) depending on grade, (i) import duty extra, (n) nominal, (t) term contracts.

ANTIMONY ORE: stu of Sb:
50-55% ..... $2.25-$2.40
60% ..... $2.50-$2.60
65% lump ..... $3.10-$3.20

BERYLLIUM ORE: stu BeO, 10-12%
Dom. (c) – dep. on quan. ..... $46-$48
Imported (a), (t) ..... $34-$34.50
Spot (a) ..... $31.75-$32.50

CHROME ORE: lt, dry basis, subject to penalties if guarantees are not met, f.o.b. cars, Atlantic ports
Rhodesian: (t)
48% Cr_2O_3, 3 to 1 ratio ..... (n) $34-$35
48% Cr_2O_3, 2.8 to 1 ratio ..... (n) $30-$32
48% Cr_2O_3, no ratio ..... (n) $25-$26
South African (Transvaal):
48% Cr_2O_3, no ratio ..... (n) $24-$26
44% Cr_2O_3, no ratio ..... (n) $18.25-$19
Turkish (basis 48% 3 to 1):
48% Cr_2O_3, 3 to 1 ratio, lump and concentrates ..... (n) $36-$37
46% Cr_2O_3, 3 to 1 ratio, lump and concentrates ..... (n) $33.50-$34
Pakistan (Baluchistan):
48% Cr_2O_3, 3 to 1 ratio ..... (n)

COBALT ORE: lb Co, free market
10% ..... (n) 60c
11% ..... (n) 70c
12% ..... (n) 80c

COLUMBITE ORE: lb pentoxide, 65% Cb_2O_5 and Ta_2O_5
Ratio 10:1 ..... $1.10-$1.20
Ratio 8½:1 ..... $.95-$1.05

IRON ORE: lt, lower lake ports, Lake Superior ore 1959:
Bessemer
Mesabi 51½% Fe $11.60
Old Range $11.85
Non-Bessemer
Mesabi 51½% Fe $11.45
Old Range $11.70
Eastern ores, ltu, delivered, foundry and basic, 56-62% ..... (n)
Swedish (t) (a) 60-68% stu (g) ..... (n)
Brazilian (b) 68½% gross ton, premium for low P, 1-1-60 ..... $11.25
Smaller sellers $11

MANGANESE ORE: (a) (i) ltu.
Mn 46-48
Ind. Fe 10, P.15, Al+Si 13 ..... (n) 87c-90c
S. Af. Fe 9, P.05, Al+Si 13 ..... (n) 87c-90c
Mn 48-50, Braz. Fe 5, P.1, Al+Si 7, As .2 ..... (n) 91c

MOLYBDENUM ORE: lb cont.
Mo.: 95% MoS_2 (b): (eff. 1.1.58)
Climax, cost of container extra $1.25
Molybdic trioxide MoO_3, bags (b) $1.46
cans $1.47

TITANIUM ORE: Ilmenite, gross tons TiO_2, 59½% f.o.b. cars, Atlantic ports ..... $23-$26
54% f.o.b. cars ..... $21-$21.50
Rutile, 94% st, for del. within 12 mos. ..... (n) $85

TUNGSTEN ORE: stu WO_3 65% basis foreign ore, (i), nearby arrival
Wolfram ..... $18.25-$19
Scheelite ..... $18.25-$19
Low moly scheelite, higher
U.S. scheelite, stu. (c) ..... $22-$24
London, ltu, WO_3 good ore
Wolfram 150s

VANADIUM ORE: lb V_2O_5 cont (c):
Domestic 31c

ZIRCON ORE: (sand) lt. (a)
Atlantic:
65% ZrO_2 ..... $50
Domestic 66%, st, (b):
Jacksonville ..... no quote
Stark, Fla. $47.25

E. A. GODOY & CO., INC.

CUNARD BUILDING, 25 BROADWAY

NEW YORK 4, N. Y.

GENERAL AGENTS

FOR

MINING COMPANIES

Rolled Metals, Etc.

BRASS: Cents lb (base prices)

33c base:	Sheet	Wire	Rods
Yellow Brass	50.57	50.86	50.26
Best quality brass	52.07	52.36	51.76
Red brass 80%	53.53	53.82	53.22
Red brass 85%	54.58	54.87	54.27
Com'l bronze 90%	56.17	56.46	55.86
Gilding metal	57.23	57.52	56.92

Eff. 11-16-59

COPPER: lb, f.o.b. mill, eff. 11-9-59
Sheet, over 20" 57.13c
Rolls, 20" & under 56.41c
Wire, bare, carloads 38.35c

LEAD SHEETS: lb, full rolled 17½c

MONEL: lb, base prices
Standard sheet 97c
Cold-rolled strip 99c
Rods, hot-rolled 80c

NICKEL: lb, base prices
Sheet, cold-rolled $1.13
Rods, hot-rolled 94c

NICKEL SILVER: lb
Sheets, 10% 65.98c
18% 70.49c
Wire, Rods, 10% 68.06c

PHOSPHOR BRONZE: lb
Sheet, 5% Sn 77.44c
Wire, rods, 5% 78.19c
10% 84.93c

ZINC: lb, base prices, carloads, f.o.b. mill
Sheet 26c
Ribbon 21½c
Plates 20c

ZINC DIE CASTING ALLOY: lb, ingot carloads, del.
No. 3 ..... 15¾c
No. 5 ..... 16c

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Metallic Compounds

COPPER SULPHATE: lb, carloads, f.o.b., crystals or diamond, eff. 11-6-59
Per 100 lb $13.00

GERMANIUM DIOXIDE: gm 18½c

COBALT OXIDE: lb, 350-lb containers, 73½%, eff. 2-1-59:
East of Mississippi $1.33
West of Mississippi $1.36
70-71% $1.29-1.32

ARSENIOUS OXIDE: (arsenic trioxide) lb, refined, white, 99%, barrels,
Carloads, N.Y. docks 4-5c
F.o.b. Laredo 4½c
Bulk Laredo 3½c
Crude, N.Y. barrels 4½c
Tacoma 3.6c
Bulk, Laredo 2.5c
Tacoma 2.1c

ANTIMONY TRIOXIDE: lb, 50-lb bags, f.o.b., eff. 12-6-58
Carloads 24c
Less 26c

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U.S. Lead and Zinc Imports

Imports of lead and zinc for the fourth quarter of 1959 were the following, in short tons, at about 4 pm December 29, according to data from the U.S. Customs Bureau.

Lead Ore

Country	entered	quota
Australia	filled	5,040
Canada	filled	6,720
Peru	filled	18,440
Bolivia	filled	2,520
U. of S. Africa	filled	7,440
Other	1,745	3,280

Lead Metal

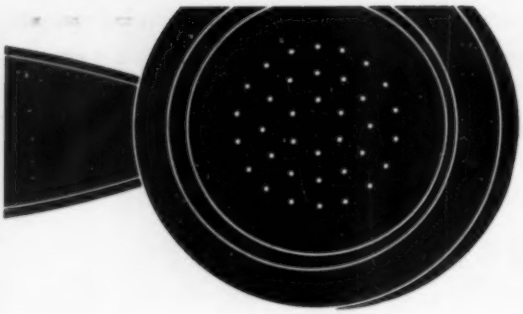
Country	entered	quota
Australia	filled	11,840
Canada	filled	7,960
Peru	filled	6,440
Mexico	filled	18,440
Yugoslavia	7,879	7,880
Other	filled	3,040

Zinc Ore

Country	entered	quota
Canada	filled	33,240
Mexico	35,074	35,240
Peru	17,403	17,560
Other	filled	8,920

Zinc Metal

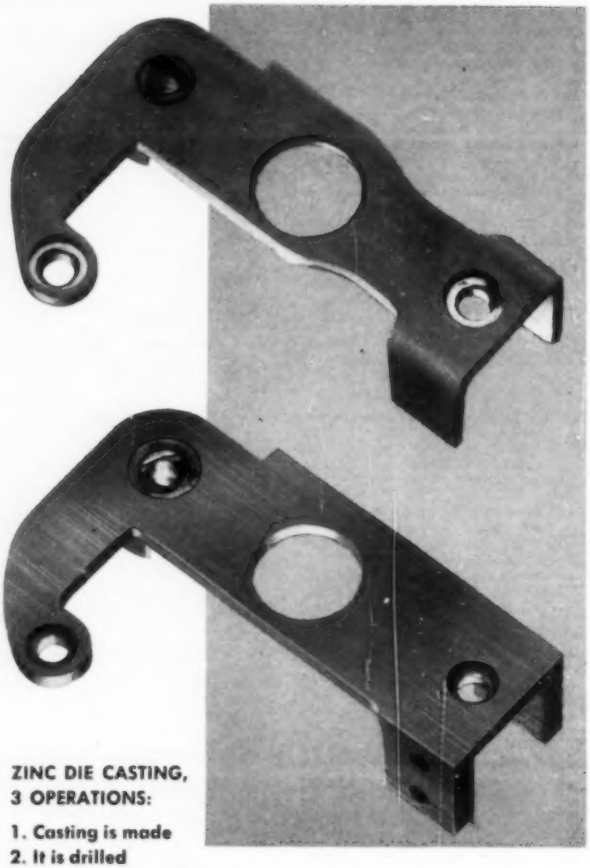
Country	entered	quota
Canada	filled	18,920
Mexico	465	3,160
Peru	1,880	1,880
Bel.-Lux.	196	3,760
Bel. Congo	filled	2,720
Italy	filled	1,800
Other	filled	3,040



STAMPING, 6 OPERATIONS:

1. Blanked and pierced
2. Formed
3. Drilled
4. Reamed
5. Drilled again
6. Tapped

ZINC DIE CASTING Cuts Costs 63%



ZINC DIE CASTING, 3 OPERATIONS:

1. Casting is made
2. It is drilled
3. Holes are tapped

• The parts shown here are dial bridges used in telephones made by Stromberg-Carlson at Rochester, New York. Originally made as brass stampings, production and assembly required 6 operations. Redesigning the dial bridges for die casting in zinc reduced the number of operations in half. The switch to zinc base die castings cut production and assembly costs 63%. In fact, cost figures indicated that the savings on the first 24,000 components would pay for the needed retooling necessary to convert to die casting. Comparable savings have been achieved by utilizing the die casting process for other methods of manufacture.

• This case history again proves that zinc plus die casting is one of the fastest and most practical low-cost production tools available to the country's metal-working industries.

DIE CASTING is the Process...ZINC, the Metal

...BUNKER HILL, the Preferred Zinc

BUNKER HILL 99.99+% ZINC

EASTERN SALES AGENTS **ST. JOSEPH LEAD COMPANY, 250 PARK AVENUE, NEW YORK 17**
SALES OFFICE FOR PACIFIC COAST **THE BUNKER HILL CO., 660 MARKET ST., SAN FRANCISC**

VITAL STATISTICS OF PRINCIPAL METALS

	Nov. 1959	*Oct. 1959*	*Sept. 1959*	*Year Ago (d)*	*% Change Latest Mo. and Year Ago*	*1958 Average*
COPPER						
Avg. price per lb, electro (a)	34.060	32.576	31.018	28.665	+ 19	25.764
Production: Dom. ref., tons	37,299	44,218	44,648	128,048	− 71	120,545
Dom. crude prim.	18,325	20,931e	19,503	96,369	− 81	84,014
Shipments to fabricators	83,626	68,648	92,501	131,188	− 36	98,187
Stocks at end, ref. dom.	74,642	78,308	79,826	93,596	− 20	.....
Fabricators' shipments	102,837	100,302	116,880	110,387	− 7	97,110
Stocks at end	412,401	431,612	462,880	419,914	− 2	.....
Imports: Blist. & ref.	.....	37,624	65,303	22,478	+ 67	32,937
In ore etc.	.....	6,674	10,660	5,051	+ 32	7,725
Exports: Refined	.....	4,404	8,965	43,141	− 90	32,349
LEAD						
Avg. price per lb, N. Y.	13.000	13.000	13.000	13.000	Zero	12.109
Production, tons (b)	18,796	18,892	14,801	40,485	− 54	43,519
Shipments, dom.	19,869	20,552	21,795	30,591	− 35	31,697
Stocks at end, dom.	114,303	115,418	117,296	179,321	− 36	.....
Dom. mine prod., metal cont.	.....	20,955	20,373e	21,274	− 1	22,018
Imports: Refined	.....	18,762	16,623	20,001	− 6	30,704
In ore	.....	6,141	16,436	16,682	− 63	16,887
ZINC						
Avg. price per lb, St. L. p.w.	12.500	12.129	11.334	11.367	+ 10	10.309
Production, refined, tons	62,346	63,938	62,202	65,174	− 4	69,075
Shipments, refined (c)	77,440	65,723	61,185	83,606	− 7	67,110
Stocks at end, dom. ref.	176,157	191,251	193,036	191,744	− 8	.....
Dom. mine prod., metal cont.	.....	30,598	28,571e	32,271	− 5	33,412
Imports: Ref. metal	.....	16,839	13,273	18,320	− 8	16,262
In ore	.....	38,934	32,409	23,988	+ 62	38,573
ALUMINUM						
Avg. price, per lb, ingot	26.800	26.800	26.800	26.800	Zero	26.890
Production, tons	153,666	173,762	168,205	140,962	+ 9	130,154
Primary operating rate	79%	89%	89%	80%	− 1	78%
Shipments, dom. metal	.....	.....	153,170	146,870	+ 4	132,581
Stocks at end, dom. metal	.....	.....	109,065	123,049	− 11	.....
Imports, crude metal	.....	.....	14,783	46,366	− 68	21,318
TIN						
Avg. price per lb, N.Y., Straits	101.042	102.274	102.435	99.022	+ 2	95.127
Production, Longhorn, long tons	.....	.....	300g	1000g	− 70	400g
Consumption, primary	.....	.....	4,825	4,350	+ 11	4,028
Stocks at end, RFC & cons.	.....	.....	38,865	35,340	+ 10	.....
Imports, metal	.....	.....	3,876	3,655	+ 6	3,429
Imports, in ore (long tons)	.....	.....	2,454	Zero	+ (h)	461

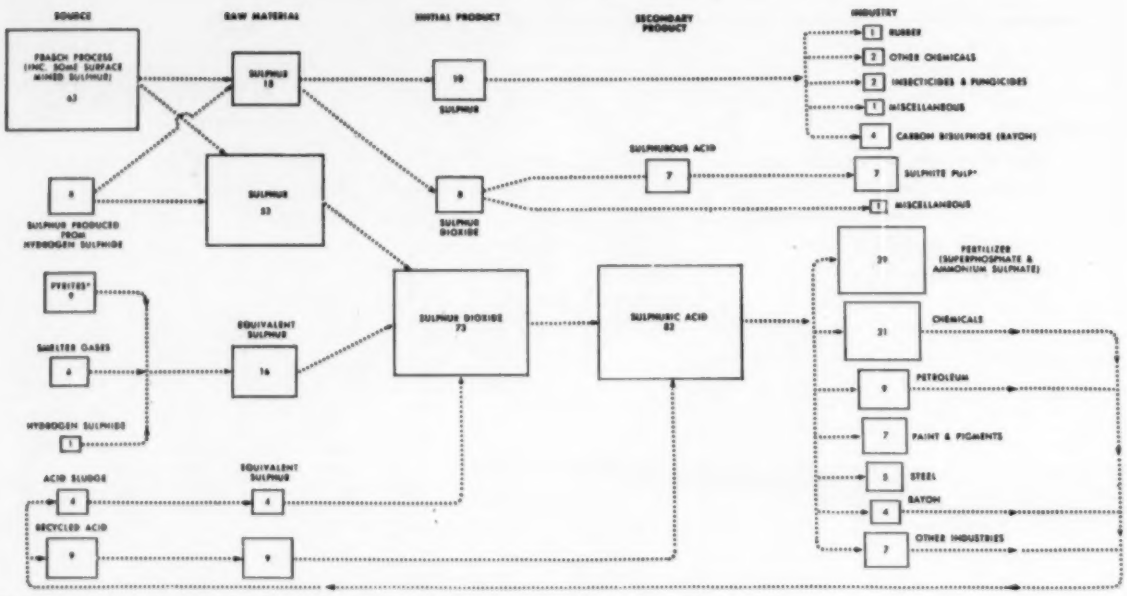
(a) F.O.B. refineries, Atlantic seaboard. For average New England delivered price, add 0.400c.
(b) By primary domestic refineries.
(c) Includes export drawback and Gov't account.
(d) The month of the previous year corresponding to the latest month shown on the same line.
(e) Revised
(f) Less than ½%
(g) Estimate
(h) Infinite

Sources: Copper production, shipments and stocks—Copper Institute. Lead production, shipments and stocks—American Bureau of Metal Statistics. Slab zinc—American Zinc Institute. Aluminum—U.S. Bureau of Mines. Tin—Department of Commerce and Bureau of Mines.

(A regular feature appearing in the last issue of each month)

Consumption of Sulphur from all Sources, by Industries in the U.S.

Chart from Texas Gulf Sulphur Co.'s SULPHUR MANUAL



Figures indicate the percentage of total consumption *Small quantity of pyrites used for pulp

Sulphur Manual Available

SULPHUR MANUAL, a four-section loose-leaf binder stressing the uses and handling of molten sulphur, has been published and offered without charge to the public by the Texas Gulf Sulphur Co.

Section I, entitled, "The Sulphur Industry," covers history, occurrence, production, economics, products and uses.

In Section II, Texas Gulf details its own experiences with molten sulphur and recommends certain shipping procedures.

Section III on handling and storage of molten sulphur provides detailed instruction on the handling of arrivals of molten material and the setting up of central and subsidiary storage facilities.

The final section describes the latest analytical methods for checking the purity of sulphur, the best methods for sampling solid and molten material and the most-satisfactory analytical apparatus to use.

An appendix reviews the properties of sulphur with the latest proved determinations.

In addition to the complete booklet, copies of the individual sections and the appendix are available by contacting the Texas Gulf Sulphur Co., 75 E. 45 St., New York 17, N.Y. The company is working on additional sections which will be sent to those having copies of the SULPHUR MANUAL.

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Brass Shipments Down

The combined volume of shipments of ingot brass and bronze for November 1959 was 22,283 tons, compared with 23,067 tons shipped in October, according to the Council of the Ingot Brass and Bronze Industry.

	1959 tons	1958 tons
Jan.	22,046	20,468
Feb.	23,746	17,413
Mar.	26,109	18,825
Apr.	26,115	18,009
May	23,967	17,191
June	22,922	17,962
July	20,346	16,658
Aug.	21,741	17,882
Sept.	22,685	20,540
Oct.	23,067	23,225
Nov.	22,283	20,758

HORSE HEAD®

Spiegeleisen

Iron-Manganese Alloy

THE NEW JERSEY ZINC COMPANY

160 FRONT ST., NEW YORK 38, N. Y. • 221 NO. LA SALLE ST., CHICAGO 1, ILL.

E&MJ QUOTATIONS

Daily Prices of Metals

Dec.	COPPER ELECTROLYTIC Domestic Refinery	Export Refinery	Europe c.i.f.	LEAD New York	St. Louis	ZINC (b) Delivered (a)	East St. Louis	ALUMINUM Primary Pig 99.5% U.S. dest.	Export	TIN Straits New York
24	34.175	31.550	32.495	12.000	11.800	13.000	12.500	26.000	23.250	98.875
25	Holiday									
28	33.950	31.475	32.420	12.000	11.800	13.000	12.500	26.000	23.250	98.625
29	33.675	31.775	32.720	12.000	11.800	13.000	12.500	26.000	23.250	98.500
30	34.150	31.525	32.470	12.000	11.800	13.000	12.500	26.000	23.250	98.750
Averages	33.988	31.581	32.526	12.000	11.800	13.000	12.500	26.000	23.250	98.688
Calendar Wk. Avgs.										
Dec. 21-25	33.938	31.250	32.195	12.000	11.800	13.000	12.500	25.675	23.250	99.031

(a) Prime Western Zinc sold on delivered basis at centers where freight from East St. Louis exceeds one-half cent a pound.

The above quotations are our appraisal of the major United States markets, based on sales reported by producers and their agencies. They represent payments received by producers for the product. They are reduced to the basis of cash, New York or St. Louis, as noted. Prices in cents per pound.

Copper, lead and zinc quotations are based on sales for prompt and future deliveries; aluminum weighted average prices are based on estimated sales and announced prices; tin quotations are for prompt delivery only.

COPPER prices, domestic, in the trade are quoted on a delivered basis, that is, delivered at consumer's plants. Delivery costs vary with the destination. The above prices are net prices at the refineries; the average shipment cost is deducted in order to arrive at a refinery price. Beginning Jan. 2, 1957, the average differential between delivered and f.o.b. prices is taken as 0.400c per lb.

COPPER quotations, foreign or export, reflect prices obtaining in the open market and are based on sales in the foreign market reduced to the f.o.b. refinery equivalent, Atlantic seaboard. On f.a.s. transactions, eff. Jan. 2, 1957, we deduct 0.125c for lighterage, etc., to arrive at the f.o.b. refinery quotation.

COPPER, Europe, c.i.f., is the export refinery quotation with the addition of the lighterage figure 0.125c, and freight to main Continental ports, 0.82c.

COPPER quotations are for ordinary forms of wirebars and ingot bars. The premiums on special shapes, effective in some instances on deliveries beginning Sept. 1, 1955, are: Standard ingots 0.25c per pound; slabs 0.55c and up, cakes 0.6c and up, depending on weight and dimensions; billets 1.725c and up, depending on dimensions and quality. Discount on cathodes 0.125c to 0.15c per pound.

ZINC quotations reflect sales of the Prime Western grade as well as sales of other grades when sold on a Prime Western basis. (b) **Zinc premiums . . .** obtaining over Prime Western zinc in the East St. Louis market on the following grades, in cents per pound: **Selected 0.10c; Brass Special 0.25c; Intermediate 0.5c. High Grade** zinc sold on contract, delivered to the consumers' plants, commands a premium of 1¼c per lb, eff. Sept. 2, 1959, over the East St. Louis basis for Prime Western. **Special High Grade** premium or differential is 1½c per lb, eff. Sept. 2, 1959.

LEAD quotations are for the common grade, and are based on sales of domestically refined metal sold to domestic consumers. The differential on sales in the Chicago district is 15 points under New York; for California 20 points under New York; for New England add 7½ points to the New York basis. Corroding grade commands a premium over common lead of 10 points.

ALUMINUM quotations refer to primary pig, 99.5 % in cents per pound. The U.S. price is freight allowed to buyers' plant; it includes sales by Canadian producers. It is a delivered price but the buyer may arrange shipment and receive the standard freight allowance. The export price is the price at which U.S. primary producers sell c.i.f. (delivered) foreign ports. The quotations are weighted averages with the weights determined by the relative capacity of the producers. Ingot sales reduced to the pig price are included in determining the price. The premium on standard ingots is 2.1c per lb.

Note: The daily quotations for copper, lead and zinc are weighted averages of sales reported to *E&MJ*; weekly averages are arithmetical averages of the daily quotations; monthly averages are the arithmetical averages of the daily quotations.

Silver, Gold, and Sterling Exchange

Dec.	Silver N.Y.	Silver London	Sterling Exchange	London Gold (a)
24	91.375	80.250d.	279.7266	250s. 7d.
25	Holiday			
28	91.375	80.250d.	279.7340	250s. 6¾d.
29	91.375	80.250d.	279.7800	250s. 8¼d.
30	91.375	80.250d.	279.9440	250s. 7½d.
Av.	91.375	—	279.796	—
Calendar Wk. Avgs.				
Dec. 21-25	91.375	—	279.750	(a) Open Market

The daily silver quotation reported by Handy & Harman, in cents and fractions of a cent per troy ounce, is the price paid by Handy & Harman in settlement for silver contained in unrefined silverbearing materials submitted to them for refining. It is determined on the basis of offers of bar silver .999 fine as made to Handy & Harman for nearby delivery at New York by regular suppliers in quantities sufficient to meet daily requirements, and it is usually one quarter cent below the price at which such offers are made.

The **Treasury's purchase price** of newly mined domestic silver was established at 90.5c per troy ounce, 1000 fine, effective on July 1, 1946 under an amendment to the Silver Purchase Act of July 6, 1939.

London silver quotations are in pence per troy ounce, basis .999 fine.

London gold quotations are per troy ounce, basis 1000 fine.

Sterling, in cents, noon buying rate for cable transfers as certified by the Federal Reserve Bank of New York, for customs purposes.

Aluminum Alloys Secondary Dec. 24-30

	Tons	Price/lb
No. 13	80	26.00c
No. 43	11	26.07c
No. 360		No Quote
No. 380		
1% Zn	173	24.91c
2% Zn		No Quote
3% Zn	440	24.44c

The secondary aluminum alloy prices are weighted average prices calculated from reports by secondary aluminum producers of the prices and quantities of their sales.

London Metal Exchange

Dec.	COPPER Cash Bid	Cash Asked	3 Mo. Bid	3 Mo. Asked	LEAD Current Month Bid	Current Month Asked	3 Mo. Bid	3 Mo. Asked	ZINC Current Month Bid	Current Month Asked	3 Mo. Bid	3 Mo. Asked	TIN Cash Bid	Cash Asked	3 Mo. Bid	3 Mo. Asked
24	260	260½	241	242	74	74¼	73¼	73½	95¼	95½	90¼	90⅝	787	787½	783	783½
25	Holiday															
28	262	262½	243	243½	74½	74¾	73⅝	73¾	95⅝	96	90¼	90⅝	784	784½	782	782½
29	262	262½	244½	245	75¼	75⅜	74¼	74⅜	96	96¼	90⅜	90½	785	786	782	782½
30	258	258½	241	241½	73⅞	74	73¼	73½	95⅜	95½	90	90¼	785	786	782½	783

Prices are for the official a.m. session in pounds sterling per ton of 2240 lb. Copper basis electrolytic and fire refined wire bars, lead 99.97%, zinc 98% and tin min. 99.75%.

THIS WEEK'S BUSINESS INDICATORS

	Latest Week	Preceding Week	Month Ago	Year Ago	Net Change Year Ago
Steel Rate (% of capacity in operation)	(d) 94.9	(a) 93.3	98.0	76.1	+18.8
Steel Ingot Production, thousands of tons	(d) 2,687	(a) 2,641	2,650	2,058	+629
Automobile Production (cars and trucks)	(d) 123,959	(a) 182,687	60,042	126,364	—2,405
Electric Power Output (millions kwh.)	14,150	14,167	13,812	13,534	+616
Engr'g Const. Awards, 4-week daily av., in thousands (c)	$52,460	60,829	62,563	53,302	—842
Federal Reserve Index of Industrial Production (e)	147 Nov.	.....	148	139	+6
E&MJ Index of Nonferrous Metal Prices (e) (b)	129.5 Nov.	.....	126.0	117.5	+12.0
All Commodities, Bureau of Labor Statistics (e)	(a) 118.9 Nov.	.....	119.2	119.2	—.3

(a) Revised. (b) Weights based on 1922-3-4. (c) From Eng. News-Record. (d) Preliminary. (e) Base period (100) is 1947-49

Chrome Ore Consumption 8% Higher in October

Domestic consumption of chromite during October gained 8% over September 1959, according to the U.S. Bureau of Mines.

Chromite consumed in producing 16,052 short tons of chromium ferroalloys and chromium metal totaled 41,110 short tons averaging 46.1% Cr_2O_3; in addition, 246 tons was added directly to steel. Of the 41,110 tons of chromite, 36,081 tons (47.4% Cr_2O_3) was metallurgical grade, 1,134 tons (44.6% Cr_2O_3) chemical grade, and 3,895 tons (34.7% Cr_2O_3) refractory grade ore. Seventy-two percent of the metallurgical grade ore had a Cr/Fe ratio of at least 3:1, 22% had less than 3:1 but at least 2:1, and 6% had less than 2:1 Cr/Fe ratio.

Chromite consumed in the production of refractories, totaled 18,807 tons (34.6% Cr_2O_3), and 620 tons was reported as used for furnace repairs. Chromite used in producing 9,865 short tons of chemicals (sodium bichromate equivalent), totaled 14,128 tons (45.5% Cr_2O_3).

Domestic production (shipments) in October totaled 9,053 short tons of 38.7% chromite concentrate, all came from Montana.

Statistics of chromite (chrome ores) in 1955-58, and 10 months of 1959, in short tons:

	Dom. output (shipments)	Imports	Consumption
1955	153,253	1,833,999	1,583,983
1956	207,662	2,175,056	1,846,600
1957	166,157	2,282,721	1,760,469
1958	143,795	1,263,437	1,220,749
1959:			
Total 9 mo.	83,321	1,149,987	1,035,307
Oct.	9,053	121,832	74,911
Total 10 mo.	92,374	1,271,819	1,110,218

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So. Rhodesia Produced 38% More Copper in First 10 Months

Salisbury (McGraw-Hill World News): Mineral production in Southern Rhodesia during October, 1959 was valued at $6,216,000, making a total of $57,959,200 for the first 10 months of the year. It now seems likely that the 1959 target figure of $67,200,000 will be exceeded by more than $1,400,000.

Copper production during the first 10 months of the year totaled 9,676 tons, an increase of 38% over the same period last year, while the value of this commodity more than doubled to a total of $4,505,200.

Up to the end of October, 472,000 oz of gold valued at $16,486,400 were mined.

Owing to price increases introduced late last year, the value of coal produced to the end of October, 1959 was, at $8,915,200, 15% up on the 1958 total for the same period, though sales increased by only 4%.

Asbestos and chrome, however, remain depressed. Asbestos output to the end of October fell by 6% to 100,861 tons and the value of this commodity slumped by 14% to $17,572,800. Chrome production, at 438,824 tons, was 18% down and realized only $6,916,000—29% less than in the same period last year.

Soviets Build Giant Iron Ore Center

Vienna (McGraw-Hill World News): The Kriwoi Rog iron ore center will yield 35-million metric tons annually — or about the combined output of Federal Germany and Great Britain, Tass claimed in a recent dispatch.

The ore mined at Kriwoi Rog is claimed to have an iron content of 59%. The subterranean deposits are worked in excavations totaling several kilometers in length, the excavations linked together so to combine the eight mining units into one whole.

All subsoil work phases are planned to be fully mechanized and partly automated. Electronic gear and television systems will control these operations. Climatic control systems will serve the few subsoil machine operators. It is expected that only 50% of the labor force now employed in the iron ore mines of the Federal Germany and England will be needed when the mine is completed in 1965. Work productivity will be three times the current Ukrainian average, the per-shift output per workers scheduled to rise to 25 metric tons.

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AISI Official Sees Record 1960 Steel Output

Although strike-bound for 116 days, the iron and steel industry made an estimated 92-million net tons of ingots and steel for castings during 1959, or about 7-million tons more than in 1958. Only seven years have had higher production. The output during the 10 years of the 1950's was slightly over 1-billion tons, a record, according to Max D. Howell, executive vice president of The American Iron and Steel Institute.

While 1959 will long be remembered for the long labor controversy, the year was also marked by record high steel production from January through June, the rapid recovery of production in November and December, and the fiercest competition ever encountered from foreign producers, during the entire year.

As the industry enters the 1960's, the short term outlook points to a cycle of high production to overtake the demands of steel users. The new decade may start off with a record annual output of over 120-million tons of raw steel in 1960, if free of prolonged strikes.

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Italian Mercury Output Off, Aluminum Production Higher

Milan (McGraw-Hill World News): According to Agenzia Economica Finanziaria of Rome, Italy's mercury ore production dropped from 207,876 metric tons during the first eight months of 1958 to 146,405 metric tons during the same period of this year.

Mercury metal production dropped from 1,481 metric tons (42,968 flasks) to 957 metric tons (27,766 flasks) for the two periods compared.

Ferroalloys

(a) carload lots; (b) delivered; (c) lump, bulk; (d) f.o.b. shipping point; (n) nominal

FERROCHROMIUM: lb contained Cr; (a) (b) (c) cont. U.S.
High carbon (4-9% C, 65-70% Cr) 28.75c
Cr) 28.75c
Low carbon (0.10% C, 67-72% Cr) eff. Oct. 1, 1957 ..... 38.50c
Special (0.01% C, 63-66% Cr) eff. Oct. 1, 1957 ..... 37.75c
Charge chrome 1 ..... 22c
Refined chrome 1 ..... 25c

FERROCOLUMBIUM: lb contained Cb; ton lots, lump (2 in) packed; (b) cont. U.S.—(50-60% Cb. max 0.40% C, max 8% Si) $3.45

FERROMANGANESE: lb (a), (c), (d) (74-76% Mn)
Standard, eff. Sept. 19, 1957 ..... 12.25c
Medium Carbon- lb contained Mn; (a), (c), f.o.b. U.S. — (80-85% Mn, 1¼-1½% C) 25.50c
Low carbon-basis as for Med. Carbon- (85-90% Mn, Max. 0.07% C) 35.10c

FERROMOLYBDENUM: lb Mo; lots 5000 lb or more, (d) (58-64% Mo) powdered, packed $1.82
Other sizes, packed $1.76
Calcium Molybdate (CaO MoO3) lump, packed $1.50

FERROPHOSPHORUS: per gross ton; (a), (c), (max 6 in.); (d) (equivalent to Tenn.) (23-26% P) $110
plus $4 per 1% above or below 24%.

FERROSILICON: lb contained Si; (a), (c), (d) (50% Si) 14.60c

FERROTITANIUM: low carbon — lb contained Ti; ton or more lots, lump (½ in.), packed, f.o.b. dest. NE U.S. — (40% Ti, max 0.10% C) $1.35
(25% Ti, max 0.10% C) $1.50
Medium Carbon — net ton; (a), lump, packed; f.o.b. dest. NE U.S. — (17 to 21% Ti, 3-5% C) $290-5
High carbon — basis as for Med. carbon — (15 to 19% Ti, 6 to 8% C) .. $240-5

FERROTUNGSTEN: lb contained W; lots of 5,000 lb or more, lump (¼ in.), packed; f.o.b. dest. cont. U.S.—(70-80% W) (n) $2.15

FERROVANADIUM: lb V; (a), var. sizes, packed; f.o.b. U.S. — (50-55% V)
open hearth $3.20
crucible $3.30
high speed $3.40

SILICOMANGANESE: lb; (a), (c), (d).
(1.5% C max 18-20% Si) 12.80c
(2% C max 15-17½% Si) 12.60c
(3% C max 12-14½% Si) 12.40c

SPIEGELEISEN: per gross ton; (a), (c) f.o.b. Palmerton, Pa.
3% max Si, 16-19% Mn $100.50
3% max Si, 19-21% Mn $102.50
3% max Si, 21-23% Mn $105.00
Eff. on orders of Jan. 7, 1957

During the first eight months of 1959, Italy produced 49,594 metric tons of aluminum pigs, against 41,395 metric tons during the same period of 1958, Agenzia Economica Finanziaria of Rome reported.

According to Agenzia Economica Finanziaria of Rome, during the first 10 months of 1959, Italy imported 94,600 metric tons of copper for 37.3-billion lire ($59.7-million) compared with 82,700 metric tons worth 26.5-billion lire ($42.4-million) during the same period last year.

Aluminum Review

(Continued from page 3)

large orders for aluminum gondola cars and covered hopper cars by two railroads.

Among the many new foundry and wrought alloys introduced during the year, 14 new wrought alloys were registered with the Association. Accelerated activity was noted in the aluminum-magnesium series of alloys which require no heat treatment.

In the Northwest two fleets of aluminum transit concrete mixers went into operation after field testing proved aluminum advantageous for this rugged type of service. On Long Island, a pair of riveted aluminum bridges, the first of their type in the nation, were erected as highway separation structures. The first trial cargo of liquified methane left a Louisiana port bound for England in a successful trial that will have far-reaching effects on both the fuel and aluminum future. Methane gas, normally a waste product, was condensed to 1/600 of its volume, chilled to a minus 259° F., and decanted into aluminum cargo tanks. Aluminum was selected because it does not embrittle, but actually experiences increased resistance to rupture at low temperatures. This quality suggests other vital applications in the realm of low temperature physics.

In containers and packaging, one food company announced in November that aluminum cans would be used for the 1959-60 pack of frozen orange juice. Earlier this year, aluminum was adopted for tuna fish cans and by two brewers for the packaging of beer.

The Navy found ways to reduce weight substantially in its new missile-firing frigate, the *USS Mahan*, through the use of aluminum plate in bulkheads and superstructure. On the carrier *USS Oriskany* large aluminum extrusions were used as flight deck planking to resist the tremendous impact of carrier-based jet aircraft.

Naval applications were matched by advances in the other armed services as aluminum armored vehicles, light enough to be air transportable, were introduced.

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August Tungsten Ore Use Increased 47%

Domestic consumption of tungsten concentrate increased 47% in August 1959, compared with July, according to the Bureau of Mines. Imports for consumption decreased 24% in August.

Production and shipments of tungsten products increased 28% and 17%, respectively, in August, compared with July 1959.

Consumption of tungsten products for the first six months of 1959 increased 100%, compared with the same period of 1958.

Stocks at producers' plants showed a slight decrease during the month.

General imports of tungsten ore and concentrate into the United States in August were 282,666 lb (tungsten content), compared with 599,410 lb in July 1959. This quantity represents the ore and concentrate received in the United States irrespective of ultimate disposition; Belgian Congo (79,590 lb), Bolivia (66,117 lb), Republic of Korea (55,082 lb), and Australia (37,924 lb) supplied 84% of the total imports.

General imports of ferrotungsten were 22,369 lb (tungsten content) in August.

Exports of ferrotungsten were 8,000 lb.

U.S. tungsten statistics, in thousands of pounds of contained tungsten:

	1958	1959 July	1959 Aug.
Concentrate:			
Consumption	5,320	580	851
Imports	6,542	440	333
Stocks end	4,670	3,551	3,069
Products:			
Production	3,403	344	441
Shipments (dom.)	5,483	94	638
Consumption	5,514	(a)	(a)
Stocks end	2,515	2,024	2,015

(a) Unavailable

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Japanese Company to Exploit Bolivian Copper

La Paz (McGraw-Hill World News): The Japanese "Compañía Metalera Nitto" has signed a contract with the Bolivian enterprise "Chacarilla Copper" for purchase of nine copper mines located at Aroma in the area of La Paz, the firms announced.

Nitto will start in the immediate future "the intensive exploitation" of copper "by the use of the most modern machinery and equipment, including electrical methods for the location of deposits."

Chacarilla Copper was the owner of 17 mines, all of them paralyzed because of a lack of financial resources, from which a group composed of "La Esperanza," "Misague," "San Juanillo," "Amigos," "Eureka," "Saca Pica," "San Fermín," "La Porfía" and "La Codiciada" have been transferred to Nitto.

A Japanese executive said that his company "is ready to invest about $10-million" in copper exploitation at these mines through a program that will be progressively expanded.

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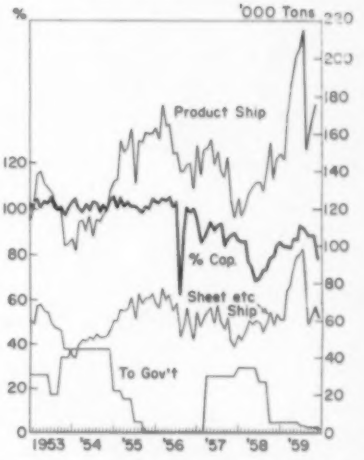
U.S. Aluminum



The left hand scale shows the percentage of capacity. "% cap." (heavy line) indicates the operating rate of U.S. primary plants; capacity is based on data released by aluminum firms and output on Aluminum Association figures. "Product ship" refers to U.S. Census data on shipments of aluminum mill products and of aluminum castings – products made from secondary and imported aluminum are included. "Sheet etc. ship" refers to Aluminum Association data on sheet, plate and foil. "To Gov't." refers to U.S. primary aluminum shipped to the U.S. Government. Annual figures for 1953-1956 are estimated; 1957-1959 are public. Monthly allocation of annual amounts is based on information (not specific tonnages) then current on changes in amounts taken by the Government. Data through November except "product ship" through October.

SLAB ZINC

★ ELECTROLYTIC
Special High Grade
High Grade
Continuous Galvanizing Line Grades

★ FIRE RETORT
High Grade
Intermediate
Continuous Galvanizing Line Grades
Brass Special
Select
Prime Western

American Zinc sales company
Distributors for AMERICAN ZINC, LEAD & SMELTING COMPANY
Columbus, Ohio ☆ Chicago ☆ St. Louis ☆ New York ☆ Detroit ☆ Pittsburgh

Iron, Steel and Coke

PIG IRON – Per gross ton Valley furnaces: Bessemer, $67.00, basic, $66.00 and No. 2 foundry $66.50.

STEEL – Per net ton, f.o.b. mill, Pittsburgh, billets and slabs, $80.00; Bars per 100 lb, $5.675; plates and structural shapes, $5.30@$5.50.

STEEL SCRAP – Per gross ton, delivered Pittsburgh, No. 1 heavy $44-45, No. 2 heavy $35-36. Cleveland, No. 1 heavy $41-42, No. 2 heavy $28-29.

COKE – Per ton, Connellsville furnace, $15.00; foundry, $18.25.

Refractories

CHROME BRICK–Per ton f.o.b. shipping point: Chemically bonded Balt. $109, Calif. $119, burned, $103.

FIRECLAY BRICK–Per M:

Super Duty	$185
High Duty	$140
Low Duty	$103

MAGNESITE – Brick, per ton f.o.b. works, 9-in. straights, $140; chemically bonded, $119.

SILICA BRICK–Per M, Pennsylvania, $163; Alabama, $158; Illinois, $168.

Caples of Anaconda Retires

Russel B. Caples, vice president of The Anaconda Co., will retire effective the end of the year, the company has reported. He will continue to serve the company as a consultant.

He joined the company in 1910 and early became a key figure in the development of the electrolytic zinc process. In 1953 he was elected president of Anaconda Aluminum Co. In 1955 he was named vice president in charge of metallurgical operations for all of the company's properties. Since 1958 he has been vice president of Anaconda.

David E. Allen, vice president – sales, has been elected executive vice president of the Anaconda Wire and Cable Co. He succeeds Richard B. Steinmetz, current president.

William H. Benton Jr., formerly general manager of mills, has been elected vice president – manufacturing. He succeeds Vito F. Di Lustro, who will retire at the end of the year.

John L. Tindale, formerly commercial vice president, has been named vice president – marketing and sales. Henry V. Van Valkenburg, general sales manager, will also become a vice president of the company. All appointments are effective January 1.

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London Copper Prices

The following prices in £ sterling per long ton c.i.f. European ports are calculated by the London Metal Bulletin (see *M&MM* Feb. 13, 1958, p 3).

Dec. 21	251.745	Dec. 24	(a)
Dec. 22	258.915	Dec. 25	Holiday
Dec. 23	(a)		
Av.			(a)

(a) Unavailable.

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Brass and Bronze Ingot

85-5-5-5 (No. 115) 30¾c; 80-10-10 (No. 305) 35¼c; 88-10-2 (No. 215) 40¾c; Yellow (No. 405) 24¾c; and upward. Manganese bronze (No. 420) 28¼c.

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Tri-State Concentrates

Joplin, Dec. 29, 1959

(a) *Blende*	*Per Ton*
Prime coarse (60% zinc)	$76
Flotation, 60% zinc	$76

(a) Effective Nov. 2, 1959

Galena

Coarse and flotation, 80% lead....(a)$141.72

(a) Effective Dec. 21, 1959

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Lead Average (Monterrey)

The net price realized by the American Smelting & Refining Co. on all of its sales of Mexican pig lead, including metal sold for consumption in Mexico, during the week ended Dec. 26, 1959, was 8.82c (U.S. per lb. f.o.b. refinery) Monterrey, Mexico.

Dealers' Scrap Prices

Dealers' buying prices, f.o.b. New York or equivalent freight points, for wholesale quantities, in cents per lb.

No. 1 copper wire	25½-26
Heavy copper & wire, mixed	22½-23
Light copper	21-21½
No. 1 composition	18½-19
Composition turnings	17½-18
Light brass	12–12½
Yellow brass turnings, mix	12–12½
Heavy yellow brass, mixed	13–13½
Auto radiators, unsweated	14½–15
Brass pipe, cut	15–15½
Rod brass turnings, No. 1	12½–13
Rod ends, brass	13–13½
New soft brass clips	15½–16
Cast aluminum, mixed	11–11½
Aluminum crankcases	11–11½
Aluminum clips, new soft	15–15½
Sheet aluminum, old clean	11–11½
Aluminum turnings, clean	6–6½
Zinc die cast, mixed	1½–2
Zinc die cast, new	3–3½
Old zinc	3–3½
New zinc clips	4½–5
Soft or hard lead	8½–9
Battery plates	4½–5
Babbitt mixed	9½–10
Linotype or stereotype	9–9½
Electrotype	8–8½
Solder joints close cut	13½–14
Block tin pipe	78–79
Autobearing babbitt	40–41
Monel Clips, new	30–32
Monel sheet, clean	26–28
Nickel, rod ends	52–54
Nickel, clippings	52–54

Smelters' Copper Scrap Prices

Custom smelters' buying prices for scrap, carload lots, refinery:

No. 1 copper and wire, 29½c; No. 2 heavy copper, 26c; light copper, 23¾c; refinery brass, 24¼c.

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A Custom Smelter Copper Price December 24-30

The following prices are computed by *E&MJ Metal and Mineral Markets* from data on flat price and average price sales reported by the American Smelting & Refining Co. They refer to electrolytic copper in standard shapes.

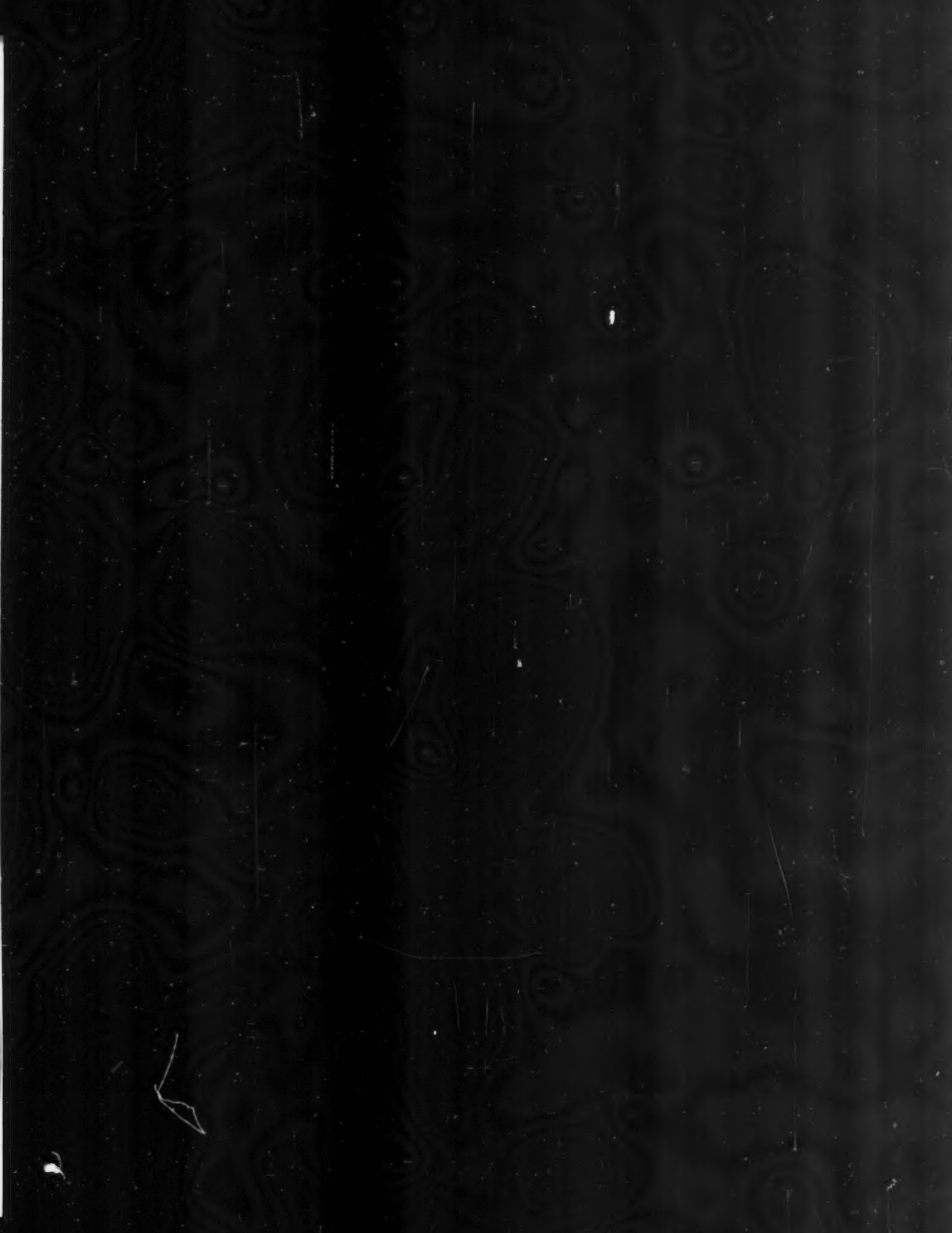
Delivered consumers' plants	34.500c
F.O.B. refinery	34.100c

They are for sales in the U.S. market and are adjusted to the nearest one-eighth cent. A one-quarter cent deduction for selling commission has been made.

N.Y. Commodity Exchange

	COPPER					LEAD				ZINC				TIN			
	Dec.-Jan.		Jan.-March			Dec.-Jan.		Jan.-March		Dec.-Jan.		Jan.-March		Dec.-Jan.		Jan.-March	
Dec.	Bid	Asked	Bid	Asked	C	Bid	Asked	Bid	Asked	Bid	Asked	Bid	Asked	Bid	Asked	Bid	Asked
24	34.18	34.18	33.39	33.39	251	11.20	11.25	11.20	11.25	11.65	11.75	11.73	11.73	*	*	*	*
25	Holiday																
28	34.55	34.55	33.94	33.94	721	11.15	11.25	11.14	11.20	11.65	11.75	11.65	11.65	*	*	*	*
(a)29	33.75	33.75	33.42	33.42	707	11.10	11.20	11.20	11.26	11.62	11.65	11.80	11.83	*	*	*	*
30	33.27	33.27	31.67	31.67	471	11.00	11.10	11.12	11.20	11.63	11.73	11.83	11.88	*	*	*	*

*Trading suspended

(a) Beginning Dec. 29 quotations are for Jan. and March contracts rather than Dec. and Jan.

Closing quotations on the N.Y. Commodity Exchange in cents per lb. C is number of contracts traded for the seven months of the year for which the Exchange accepts trading. Each contract is for 25 tons. Where bid and asked prices are the same, closing quotation was one at which transactions occurred.